

RESPONSE TO PUBLIC COMMENTS

From November 1, 2006 to November 30, 2006, the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) solicited Public Comment on a draft NPDES permit, developed pursuant to an application submitted by the Town of Ware, Massachusetts for reissuance of its permit to discharge treated wastewater to the designated receiving water, the Ware River.

After a review of the comments received, EPA has made a final decision to issue the permit authorizing this discharge. The following response to comments briefly describes and responds to the comments received on the draft permit and describes any other provisions of the draft permit which have been changed in the final permit and the reasons for those changes. Clarifications which EPA considers necessary are also included. A copy of the final permit may be obtained by writing or calling Meridith Decelle, United States Environmental Protection Agency, 1 Congress Street, Suite 1100 (CMP), Boston, Massachusetts, 02114-2023; Telephone: (617) 918-1533.

- A. Comment submitted by Gilbert St. George-Sorel, Superintendent, Town of Ware Department of Public Works, dated December 14, 2006. Although submitted after the close of the public comment period, the comment is addressed in this document, and as such, is part of the administrative record.**

Comment A.1

*Under Footnotes: *8 on Page 3 of 12 of the Draft Permit, the Town must install an alarm system on its chlorination and dechlorination systems at the wastewater treatment plant (WWTP) "within 90 days of the effective date of this permit for indicating system malfunctions and interruptions." As I understand this requirement, the Town will have to install a device that constantly monitors and records the chlorine level in the final effluent before and after dechlorination. I discussed this type of installation with a representative from the company that supplied and services our chlorination/dechlorination system to determine the level of effort required to install this equipment. This installation will definitely involve some excavation at the WWTP to install conduit and other equipment at the appropriate monitoring points and is, therefore, dependent on the weather.*

This week, a representative of the Massachusetts Department of Environmental Protection (MassDEP) conducted an inspection of the WWTP and advised me that MassDEP will also have to approve and permit this installation. As a result, the Town will have to hire an engineering firm to prepare and submit a design to MassDEP for approval. Depending on the cost, the Town will also have to appropriate a sum of money at a Town Meeting to hire a consultant and purchase and install the equipment. Town Meetings are held in May and November, or December.

I recommend this deadline be revised to provide one year from the effective date of the permit to design, procure and install this system.

Response A.1.

EPA would like to clarify that it is not requiring the Town to install a continuous total residual chlorine analyzer to monitor and record the chlorine concentrations in the effluent, before and after dechlorination, as implied by the comment. The intent of the requirement in Footnote 8 is to have an alarm system installed that can alert treatment plant personnel in the event of malfunctions or interruptions in the operation of the chlorination/dechlorination dosing systems (the chemical feed side of the system) which could potentially affect the amount of chlorination and/or dechlorination chemicals added to the effluent. While the Town may install a continuous TRC analyzer, it is not specifically required by the permit.

EPA has provided a one year schedule for installation of the alarm system, to provide adequate time should the Town decide to install a system with continuous chlorine analyzers. We would anticipate that if a simpler system is chosen, its installation would be completed more quickly. Footnote 8 has been changed in the final permit to read “chlorination and dechlorination systems shall include an alarm system within one (1) year of the effective date of the permit for indicating system interruptions or malfunctions.”

B. Comments submitted by Ms. Andrea F. Donlon, River Steward, Connecticut River Watershed Council, dated November 30, 2006.

Comment B.1.

This WWTP may be one reason why the Ware River is water quality impaired. Attachment A indicates that the facility has discharged at least one daily maximum of 1,080 fecal coliform counts/100 mL between January 2004 and February 2006. Attachment A provides only summary data, but it is evident that the facility has greatly exceeded its daily maximum limit of 400 at least once. We’d like to see a greater emphasis in the permit, or enforcement actions, to make sure the facility meets its bacteria limits, especially since a TMDL will eventually need to be written for the Ware River.

Response B.1.

The summary data in **Attachment A** of the fact sheet is from discharge monitoring reports (DMRs) submitted by the permittee from January 2003 to February 2006. During that time, the Ware WWTP exceeded its fecal coliform limits on two occasions, the first of which was in April of 2003 and the second in June of 2003 (see Response to Comments - **Attachment A**). The WWTP noted the exceedances and the corrective actions taken in the 2003 Chlorination System Report submitted to EPA.

The April 2003 exceedance (1080 cfu/100 ml maximum daily) was attributed to an electrical problem in a newly-installed chlorine dosing unit. This problem was quickly identified and rectified, and the plant returned to compliance. The June 2003 exceedance (590 cfu/100ml maximum daily) was related to a rupture in the water line that feeds that WWTP. Again, action was taken to remedy the situation, and the WWTP returned to compliance.

Aside from these two incidents, the permittee has been able to consistently meet the limits in the current permit. EPA does not foresee any issues with the permittee not being able to achieve the fecal coliform limits in the draft permit and they shall remain as written in the final permit.

Comment B.2.

We support the addition of ortho-phosphorus sampling in this facility's permit, and we support the new total phosphorus limit for the period November 1 to March 31. However, we continue to disagree with EPA's assumption that all rivers are devoid of total phosphorus upstream of WWTP discharges (see page 5 of the Fact Sheet).

Response B.2.

The Massachusetts Department of Environmental Protection (MassDEP) Division of Watershed Management (DWM) conducted physical/chemical monitoring in the segment of the Ware River into which the Ware WWTP discharges (segment MA36-06) in September of 1998. Analysis of the data revealed an instream phosphorus concentration of 0.04 mg/l (1998 Water Quality Assessment for the Chicopee River Basin (MassDEP)). The instream flow of the Ware River on the day samples were collected for the 1998 monitoring event was 28 cubic feet per second (cfs)(stream flow data was collected by the USGS gaging station in the Ware River at Gibbs Crossing-gage no. 01173500). As described in the fact sheet, the 7Q10 flow at this gaging station (22.37 cfs) was used to calculate the 7Q10 of the Ware River where the Ware WWTP outfall is located (21.1 cfs).

Taking into account a background instream phosphorus concentration of 0.04 mg/l, an upstream river flow under 7Q10 conditions of 22.37 cfs (worst-case scenario), an effluent flow of 1.0 MGD, and a discharge of phosphorus in the concentration of 1.0 mg/l (proposed limit), the downstream phosphorus concentration can be calculated as follows:

$$C_r = \frac{Q_s C_s + Q_d C_d}{Q_r}$$

Where:

C_r = Concentration of phosphorus in the receiving water downstream of the discharge

Q_s = Upstream river flow (cfs)

C_s = Upstream phosphorus concentration

Q_d = Discharge flow (cfs)

C_d = Concentration of phosphorus in the discharge (proposed limit)

$$Q_r = Q_d + Q_s$$

$$Q_s = 21.1 \text{ cfs}$$

$$C_s = 0.04 \text{ mg/l}$$

$$Q_d = 1.0 \text{ MGD} = 1.55 \text{ cfs}$$

$$C_d = 1.0 \text{ mg/l}$$

$$Q_r = 22.37 \text{ cfs} + 1.55 \text{ cfs} = 23.92 \text{ cfs}$$

$$C_r = \frac{[(21.1 \text{ cfs})(0.04 \text{ mg/l}) + (1.55 \text{ cfs})(1.0 \text{ mg/l})]}{22.65 \text{ cfs}}$$

$$C_r = 0.11 \text{ mg/l} \sim 0.1 \text{ mg/l}$$

This results in a downstream phosphorus concentration of approximately 0.1 mg/l, which is the recommended criteria (EPA 1986 Quality Criteria for Water).

It should be noted that there are three wastewater treatment plants that discharge into the Ware River upstream of the Ware WWTP (Barre WWTP, Hardwick WPCF (Gilbertville) and Hardwick WPCF (Wheelright). At the time of the MassDEP 1998 instream physio/chemical sampling event, none of these dischargers had phosphorus limits in their NPDES permits. Since the publishing of the 1998 data, the permits for these facilities have been reissued with phosphorus limits of 1.0 mg/l (the total phosphorus loadings from the two Hardwick facilities were considered when establishing the limit for the Gilbertville facility). As a result of limiting the amount of phosphorus discharged from these facilities, it is expected that the instream phosphorus concentrations upstream of the Ware WWTP is lower than the reported 1998 concentration of 0.04 mg/l.

For the above reasons, EPA has made the determination that the phosphorus limits proposed in the draft permit are stringent enough to ensure that the recommended instream phosphorus criteria of 0.1 mg/l under 7Q10 conditions is not exceeded (EPA 1986 Quality Criteria for Water).

Comment B.3.

It is not clear why the Ammonia-Nitrogen seasonal permit limits are not consistent with the time frame for total phosphorus and bacteria limits, which both begin April 1 rather than June 1.

Response B.3.

The seasonal ammonia-nitrogen, total phosphorus, and fecal coliform limits were established to address three separate water quality issues that may arise at different times of the year.

The possibility exists for phosphorus discharged from the WWTP during the winter months to accumulate in downstream sediments where it may become available for assimilation by aquatic

plants, thereby contributing to cultural eutrophication during the growing season, which in the New England region typically lasts from April through October. For this reason, in addition to limiting the concentration of phosphorus discharged from the treatment plant during the growing season (April 1st through October 31st), the draft permit includes a limitation on the amount of phosphorus that can be discharged from November 1st through March 31st.

The objective of the seasonal ammonia nitrogen limitation is to limit the instream concentration of ammonia available to undergo nitrification to nitrates, which is an aerobic process. During the summer months, as the instream temperatures rises the concentration of dissolved oxygen decreases. When rising temperatures are combined with aerobic processes such as nitrification, the river may experience periods of low dissolved oxygen. Anoxic conditions in freshwater aquatic systems are detrimental to many forms of aquatic life, and therefore have a negative impact on the overall quality of the river. The ammonia nitrogen limitation is in effect from June 1st through October 31st because the instream temperatures are expected to be the highest during these months.

Fecal coliform limits are in effect from April 1st through October 31st in accordance with the Massachusetts Surface Water Quality Standards for Class B waters (314 CMR § 4.05(3)(b)(4)). These months are also when the Ware River is most likely to be used for recreational purposes. .

Comment B.4.

We note that the copper limits have been removed from the draft permit because the permittee has greatly decreased effluent concentrations since installing a corrosion control program in July of 2004. The Fact Sheet cites sampling results from March 2005 to February 2006 in its rationale to remove the copper limits. We applaud the measures the permittee has taken; however, we would like to see two year's worth of data presented before deciding to remove the copper limit. We suspect EPA and DEP have two year's worth of data (August 2004 to July 2006), but we aren't sure why this information wasn't included.

Response B.4.

Copper limits were exceeded in the three months immediately following the implementation of the corrosion control program in July 2004. These exceedances were likely due to the presence of residual copper within the system. Since November of 2004, the Ware WWTP has met the total copper limits in the current permit (see Response to Comments - **Attachment A**). EPA believes that the monitoring data from November 2004 to present shows that the permittee has adequate control over any copper issues, and is maintaining its position on removing the limits for total copper from the permit.

Also see Comment C.1.

Comment B.5.

We are glad that EPA has inspected the facility and is requiring the permittee to develop Maximum Allowable Industrial Headworks Loadings (MAIHL) for total suspended solids and zinc. We also support the requirement that the permit include effluent from the two significant industrial users in its toxicity testing.

Response B.5.

EPA acknowledges the comment.

Comment B.6.

The Fact Sheet did not include an Endangered Species Act Consultation section. The Fact Sheet should state that the permit writer determined there to be no federally endangered species known to inhabit the Ware River.

Response B.6.

Fact sheets are not modified once permits have gone to public notice. Any corrections to the fact sheet are noted in the Response to Comments document which becomes part of the administrative record.

An Endangered Species Act (ESA) section should have been included in the Fact Sheet to read as follows:

Under the Endangered Species Act (ESA), federal agencies are required to ensure that actions they conduct, authorize, or fund are not likely to jeopardize the continued existence of any federally-listed threatened or endangered species or result in the adverse modification of designated critical habitat. EPA has determined that no endangered or threatened species or critical habitat are in proximity to the point where the authorized discharge reaches the receiving water and that consultation with the United States Fish and Wildlife Service (USFWS) is not required.

**C. Comments submitted by Ms. Cindy Delpapa, Stream Ecologist,
Commonwealth of Massachusetts Riverways Program, dated November 28,
2006.**

Comment C.1.

The draft permit recognizes the past copper compliance issues at the Ware facility but explains measures have been instituted to correct the problem. The recent monitoring data confirms the

improvement but we are concerned discontinuing monthly copper monitoring after only one year of compliance may be premature. We would like to suggest that if one of the quarterly copper concentration results associated with the whole effluent toxicity testing produces an elevated concentration of copper that the facility be required to resume monthly testing for at least one additional year.

Response C.1.

The results of copper monitoring included in the monthly discharge monitoring reports (DMRs) submitted to EPA and MassDEP by the Ware WWTP show that the facility has consistently met the copper limits in its current permit since November of 2004 (see Response to Comments - **Attachment A**). If the quarterly copper monitoring conducted in conjunction with whole effluent toxicity testing indicates an increase in the copper concentration in the effluent, EPA may reopen and modify the permit to increase the copper monitoring frequency or include an effluent limit.

Comment C.2.

The phosphorus limit is slated to be a year round limitation which affords an additional level of protection to the receiving water and downstream resources. This is an addition we fully support. The actual phosphorus limitation of 1.0 mg/l (monthly average) will allow the water to achieve Gold Book criteria but only if the background phosphorus conditions in the Ware River are 0.03 mg/l or below. This is a modest in stream concentration, one likely not achieved in the river consistently if at all. Is there current in stream monitoring data available to provide more information on the existing phosphorus concentrations? Barring actual in stream phosphorus data, even if one were to assume considerable additional dilution above the 7Q10 flow, say the 30Q10 flow and the 18.7 dilution factor the necessary background concentration (0.05) to achieve Gold Book standards would likely be exceeded with some frequency. We would advocate for moving the phosphorus limit to or at least toward the technologically achievable concentration of 0.02 mg/l) in order to provide a cushion should the Ware River have existing phosphorus levels such that it is unlikely the Gold Book guidance would be met consistently and potentially reach ecoregional criteria.

Response C.2.

Please see Response B.2.

Comment C.3.

The Ware facility has shown some compliance problems with whole effluent toxicity test limitations. The most recent data in the PCS database indicates three of the last four chronic tests failed to meet the 7% limit (5/2005, 11/2005, and 2/2006). This number of exceedances is

equivalent to a 75% failure rate for these quarterly tests. This suggests a serious chronic toxicity problem.

We are pleased to see the requirement in the draft permit to undertake an additional WET testing should there be a WET test failure. With the infrequency of these tests, a single failure can represent a significant number of potentially toxic discharge days and additional testing may help to classify a failure as a chronic problem or an intermittent one. We would also like to encourage a more aggressive approach to the toxicity tests failures should this recent chronic toxicity trend continue. The Permittee is directed to include the significant users flow when performing WET tests when feasible. We would like to recommend the Permittee identify the approximate make up of the effluent during the tests (such as one, both or none of the significant industrial users contributing and approximate percentage of the effluent of each constituent). This information would help identify or eliminate the source(s) of toxicity. We would hope the Permittee could then work quickly to implement measures to curtail toxic constituents from entering the treatment facility or to continue with toxic source identification. We recognize and fully support the requirement to develop a Maximum Allowable Headworks Loading as this will improve treatment efficiency at the plant and potentially reduce toxic substances in the effluent.

Response C.4.

We believe that the required Maximum Allowable Industrial Headworks Loading analysis will serve to resolve any industrial contribution to whole effluent toxicity. If violations of the WET limits continue, the Town could be subject to an enforcement action which may include a requirement to conduct a toxicity identification evaluation and a toxicity reduction evaluation.

Comment C.5.

The data in the PCS database shows a great deal of fluctuation in nitrogen concentrations in the effluent with several months having exceptionally high levels. The nitrite plus nitrate concentration for October, 2005 was 112.59 mg/l which correlates to a loading of 714 lbs/day at the monthly average flow of 0.76 MGD. TKN was 99.25 mg/l in January of this year for a daily load of 690 lbs. This is a significant nitrogen load entering into the Chicopee River system and eventually the greater Connecticut River. It is our hope the facility can work toward reducing these peak loads of nitrogen compounds to the benefit of downstream waters.

Response C.5.

The nitrite plus nitrate average monthly mass and concentration loadings for October 2005, as listed in the PCS database and as written on the discharge monitoring report submitted by the permittee for that month, are 112.59 lbs/day and 12.0 mg/l (not 112.59 mg/l, as written in the comment). The average monthly TKN mass and concentration loadings for January of 2006, as listed in the PCS database and as written in the discharge monitoring report submitted for January 2006, are 99.25 lbs/day and 10.0 mg/l (not 99.25 mg/l, as written in the comment). Also see Response to Comments - **Attachment A**.

Additional Changes Made to the Final Permit

- At the request of MassDEP, Part I.A.1.h. has been added to the final permit to include the following requirement: “If the average annual flow in any calendar year exceeds 80 percent of the facility’s design flow, the permittee shall submit a report to MassDEP by March 31 of the following calendar year describing their plans for further flow increases and how they will maintain compliance with the flow limit and all other effluent limitations and conditions.
- At the request of MassDEP, the following language has been added to Part I.C of the final permit: “Notification of SSOs to Mass DEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instructions for its completion may be found on-line at:
<http://www.mass.gov/dep/water/approvals/surffms.htm#sso>
- The following statement pertaining to *E. coli* sampling has been added to Footnote 6: “The monthly *E. coli* samples shall be collected concurrently with one of fecal coliform samples.”
- The language in Footnote 14 and Part I.B establishing the compliance schedule for achieving the winter phosphorus limits was edited for greater clarity. The duration of the schedule was not changed.